CHAPTER 3.0
MASTER RESPONSES

3.1 INTRODUCTION

Some comments on the DEIR for the Oroville Facilities Relicensing, FERC Project No. 2100, were made frequently, demonstrating common concerns among those submitting written comments and those speaking at the public hearing. The array of similar comments about a particular topic revealed different aspects of the common issue. To allow presentation of a response that addresses all aspects of these related comments, master responses have been prepared for those topics that were raised in a number of comments from State agencies, local agencies, non-governmental organizations, and members of the public. Each master response allows a well-integrated response that addresses all facets of a particular issue, rather than piecemeal responses to individual comments, which may not have described the full complexity of the related concerns. In the event that additional description beyond the master response is warranted, individual responses were prepared for further clarification. Specific responses to individual comments are provided as appropriate in Chapters 4.0 through 7.0 of this FEIR. The following is a list of the master responses that have been prepared for this document:

- The Relationship between the Oroville Facilities and Rice Yields
- The Relationship between the Oroville Facilities and Socioeconomics
- The Relationship between the Oroville Facilities and Climate Change
- The Relationship between the Oroville Facilities and Foreman Creek
- The Relationship between the Oroville Facilities and OCAP

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3.2 THE RELATIONSHIP BETWEEN THE OROVILLE FACILITIES AND RICE YIELDS

Several comments have raised concerns regarding the information presented in the DEIR concerning baseline conditions and the Proposed Project's potential impacts on rice yields, as well as whether the Proposed Project meets the State Water Resources Control Board's (SWRCB's) *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* (Basin Plan) standards for irrigated agriculture beneficial uses. This master response is intended to clarify issues addressed in the EIR. Specific responses to individual comments on agriculture-related issues are provided in Chapters 4.0, 5.0, and 6.0 of the FEIR in responses to comment letters.

3.2.1 Analysis of Impacts on Rice Yields

3.2.1.1 A Qualitative Analysis of Impacts is Proper

Several comments suggest that the DEIR did not properly take into account studies regarding the relationship between water temperatures and rice yields. The comments also proposed approaches to quantify yield losses. Relying on the analysis of staff and consultants, DWR has concluded that the proposed approaches are flawed and misapply available literature. Given the limitations of the best available science, the DEIR utilized the best available analytical method, which was a qualitative evaluation of water temperature effects on rice yields.

The literature cited or utilized in the comments to support these proposed quantitative analyses is based on relationships of rice yields to cold water exposure. Although the literature relied on by the commenters contains useful information about the yield response of rice to cold water exposure, because the relationships defined are only specific to a location within a field, they are not useful for and cannot be applied to estimate the total or even relative yield loss that would occur overall within a field. Further, these relationships would not be applicable to estimate rice yield loss across the water districts that are supplied with water from the Oroville Facilities, nor would they be useful to estimate the change in rice yield loss for a field or across the water districts with any given change in cold water exposure associated with the implementation of the Proposed Project. Due to the limitations of the available literature documenting the relationship of rice yield loss to cold water exposure, the best available science does not support a quantitative analysis of the relationship between water temperature and rice yields; therefore, it was proper to utilize a qualitative analysis in the DEIR.

3.2.1.2 The Decision to Not Use the 2005 Cold Water Study in the DEIR was Proper

Several comments suggest that the DEIR should have included in its analysis a rice water temperature yield loss study (Mutters 2007) initiated jointly by DWR, the water districts, and the University of California, Davis, in 2005. Any representation of the incomplete results from this study as representative of the entire district is

fundamentally flawed because the portion of the study needed to apply the analysis on a district-wide level was never finished. The tasks that were not completed were those that were required to reliably expand the results of the experimental fields to characterize and quantify the yield changes throughout the water districts. The study plan included the collection of four interlocking data sets, of which only two were completed.

The first step of the study scope included monitoring and collecting water temperature and yield data from six fields. The yield data from the six fields were to be used to establish a relationship to commercial harvester yield monitor data on additional fields. The yield monitor data from these additional fields were not collected. The commercial harvester yield monitor fields and the six experimental fields were then to be used to establish a relationship to the spectral characteristics of aerial multi-spectral images for additional fields. Since the commercial harvester yield monitor field data were not collected, the yield-to-multi-spectral-image relationships were not established. The yield-to-spectral relationships of the additional fields were then to be used as an image classification training set for a satellite image to estimate yield losses across the districts. The satellite image data were acquired too late in the season to be of use for the study. So, of the four interdependent data sets required to extrapolate the yield losses from the six fields to estimate rice yield losses across the districts, only two were completed. As a result, the study cannot be used to characterize and quantify yield changes throughout the water districts.

Additionally, it was not proper to use the report in the DEIR because it (1) used inadequate sample size and geographic distribution not representative of the entire range of conditions throughout the districts; (2) included only 1 year of data, which does not represent variable conditions that could change from year to year; and (3) may be susceptible to substantial error in estimating overall yields by extrapolating results from a single check to determine overall field yields.

Further, any interpretation of the 2005 study should take into account the fact that three of the six experimental fields were selected because they represented the extreme of cold water exposure conditions in the districts. The average yield loss of the six experimental fields is based on too small a sample to reasonably generalize across the district, so a simple average is also not an accurate or reliable method to characterize the range of conditions that occur throughout the districts.

The report has not been accepted as final by DWR. As a general practice, DWR does not cite draft documents due to the risks inherent with referencing documents that are anticipated to change and have not completed appropriate internal and external reviews.

3.2.2 Impacts on Rice Yields

3.2.2.1 Impacts on Rice Yields from the Proposed Project Would Be Small

Contrary to the assertion contained in several comments, the Proposed Project would not result in a significant decrease in the temperature of agricultural diversions from that of the existing conditions, and in fact may result in an increase in temperature in some instances. The effects on rice yields resulting from the changes in water temperatures associated with implementation of the Proposed Project would therefore be small. While the reasons for not using a quantitative analysis for estimating impacts on rice yields are set forth in Section 3.2.1 above, an estimate of the potential effect on rice yield production from the Proposed Project is provided below to respond to the specific request from the SWRCB for such an estimate.

As presented in the DEIR, the Proposed Project would not change water temperature objectives for the Feather River Fish Hatchery, but would result in operational changes to meet the revised water temperature targets in the lower Feather River at the Robinson Riffle water temperature monitoring location. An analysis of the potential source water temperature change for agricultural diversions in Thermalito Afterbay evaluated the frequency and magnitude of water temperature changes that would occur with the Proposed Project's new water temperature objective set forth in SA Article A108; see the analysis presented in the DEIR, Section 5.2.2.5.

The analysis determined that the Existing Condition water temperatures were already in compliance with the new water temperature objectives over 75 percent of the time between May through July, which is the period during which rice production is sensitive to water temperature. Further, the analysis showed that during the remaining 25 percent of the time that water temperature management actions would be required for the Proposed Project, the source water temperature change would range from zero to a maximum of a water temperature reduction of 2 degrees Fahrenheit (^{o}F). The reason that in some cases a water temperature control action would result in no source water temperature change is that one of the water temperature control actions called for in SA Article A108 is to increase the flows in the Low Flow Channel (LFC) up to 1,500 cubic feet per second (cfs). Increased LFC flows would result in a water temperature reduction at the Robinson Riffle water temperature monitoring location without changing the source water temperatures. Additionally, the DEIR points out that the increased LFC base flows and the increased LFC flows for water temperature management would result in an increase of the residence time of water in Thermalito Afterbay, which would provide an opportunity for water temperatures to increase prior to diversion to the water districts.

The incremental change in water temperatures at the agricultural diversions would be small with the implementation of the Proposed Project. A supplemental quantitative analysis is provided below to clarify and amplify the analysis in the DEIR on water temperature changes as a result of the Proposed Project as compared to Existing Conditions. The analysis results indicate that the duration of time that water temperatures are below 65^{o}F during the sensitive rice growth stages (May 1–July 31)

with the implementation of the initial license conditions of the Proposed Project would increase 0.53 percent, 0.14 percent, and 0.41 percent for analysis scenarios 1–3, respectively, as explained below.

Because the temporal distribution of the reduced water temperatures for approximately 25 percent of the time during the rice-sensitive growth stage is unknown, three scenarios were used to evaluate potential change in the duration of exposure to water temperatures below 65°F at the Western Canal Water District (WCWD) diversion. The three scenarios were (1) all reductions in water temperatures occur at the beginning of the period, (2) all reductions in water temperatures occur at the end of the period, and (3) reductions in water temperatures are evenly distributed throughout the period (reduced water temperatures every fourth day). Additionally, because it is not possible to determine how much the water temperatures would be reduced in the zero-to-2°F water temperature reduction range, the analysis uses the most aggressive assumption and assumes that all water temperature reductions are the maximum amount that could potentially occur (i.e., analysis was conducted using a 2°F reduction for all scenarios). The analysis uses the water temperature data from 2002–2005 at the WCWD diversion at Thermalito Afterbay. The average annual number of hours below 65°F during the 2002–2005 period was 2,707 hours. The analysis of a reduction of water temperatures, as described in scenarios 1–3, results in an increase of the average annual hours below 65°F of 2,721, 2,710, and 2,718 hours, respectively. The increase of 14, 3, and 11 hours over the average annual number of hours of exposure (2,707) results in an increase in the relative amount of average annual exposure to water temperatures below 65°F of 0.53 percent, 0.14 percent, and 0.41 percent for analysis scenarios 1–3, respectively.

Although the use of the WCWD agricultural diversion location is utilized for this analysis due to the availability of data, it should be noted that water temperatures vary throughout the districts and even throughout locations within a field. Therefore, there could be some locations within the districts and within fields that are more affected, as well as locations that would be less affected than these diversion location analysis results indicate. In consideration of the limitations of this supplemental discussion, it is clear that the proportion of change in source water temperatures associated with the Proposed Project would result in a very small incremental change in the duration of cold water exposure. Therefore, as previously presented in the DEIR, the change in source water temperature would not be expected to result in a change in rice yields that would in turn cause conversion of farmland to non-farming uses.

3.2.2.2 The Proposed Project May Increase Water Temperatures for Agriculture

In addition to the small reduction in source water temperature discussed above, the DEIR also determined that the Proposed Project could actually increase water temperatures at the agricultural diversions due to increased residence time of water in the Thermalito Afterbay. The DEIR, Section 5.2-15, states, “To maintain the same net facilities releases in the HFC [High Flow Channel] with increased flows in the LFC, Thermalito Afterbay release to the lower Feather River would be reduced accordingly. Therefore, the effective residence time of water in Thermalito Afterbay and the

opportunity for water warming prior to diversion for agricultural uses would increase slightly from Existing Conditions, which would result in a contribution to increased water temperatures at the agricultural diversions."

3.2.2.3 FERC's FEIS Reached the Same Conclusion Regarding Water Temperature Changes Resulting from the Proposed Project

In its Final Environmental Impact Statement (FEIS), FERC independently analyzed the effects of the Proposed Project on water temperatures in Thermalito Afterbay specifically in regard to diversions for agriculture and reached a similar conclusion. On page 100 of the FEIS, FERC staff wrote: "Even if less water would need to be released from the Thermalito Afterbay to meet temperature objectives in the high flow channel and other operational aspects of the projects were not drastically changed, water temperature in the afterbay would likely be very similar to what currently exists. Overall, we expect temperatures of water delivered to the agricultural diversion under the Proposed Action to be similar to current conditions."

3.2.3 The DEIR Properly Analyzed the Impacts of the Proposed Project on the Designated Beneficial Uses

Several comments indicated that the DEIR did not properly analyze the Proposed Project's impact on beneficial uses set forth in the Basin Plan, in particular with regard to the impacts on beneficial uses for irrigated agriculture. The comments also appeared to confuse baseline conditions with impacts from the Proposed Project. To clarify the analysis regarding whether the Proposed Project would meet the beneficial uses set forth in the Basin Plan, it is useful to first discuss whether the beneficial uses are currently being met under baseline conditions.

For purposes of this analysis, it is helpful to restate the agricultural beneficial use as set forth in the Basin Plan: "Uses of water for farming, horticulture, or ranching, including, but not limited to, irrigation (including leaching of salts), stock watering, or support of vegetation for range grazing." Based on this definition, in order to meet the beneficial use the Project (Oroville Facilities) must supply water of sufficient quantity and timing for irrigation and stock watering. The Basin Plan does not specify a target temperature for the water supplied to agricultural users. However, in the interest of addressing the issues raised in the comments, the water temperature effects on irrigated agriculture beneficial uses are discussed below.

As described in Section 4.2.2.1 of the DEIR, DWR evaluated the current operations of the Oroville Facilities, hereafter referred to in this response as "baseline conditions," and found that they support and reasonably protect, or have no adverse effect on all beneficial uses in the Basin Plan, including irrigated agriculture.

The evaluation of the beneficial uses for irrigated agriculture should not be determined by a single aspect of the beneficial use. Rather, an analysis should evaluate the totality of the effect of the Project on the beneficial use. Water temperature, as it relates to the suitability of water for irrigated agricultural beneficial uses, should only be one factor in

the evaluation of the beneficial use for irrigated agriculture. Evaluation of the irrigated agriculture beneficial use would be incomplete without consideration of other relevant and balancing factors.

Other factors that should be included in the evaluation of the irrigated agriculture beneficial use include (1) conflict with other designated beneficial uses, (2) the effect of increased reliability of water supply, and (3) the effect of increased quantity of water supply on irrigated agriculture. When considered in their totality, the Project and existing baseline conditions provide substantial benefits to irrigated agriculture and meet the Basin Plan designated beneficial use.

3.2.3.1 The Existing Project Meets the Competing Needs of the Water Body

In analyzing whether the Project meets all of the designated beneficial uses, it must be understood that the water bodies that constitute the Oroville Facilities are considered cold water bodies in the Basin Plan. The Basin Plan divides Project waters into two separate segments, the first being Lake Oroville, and the second being from the Fish Barrier Dam to the Sacramento River. Although it is unclear which segment Thermalito Afterbay falls under, what is clear is that both segments are designated in the Basin Plan as both cold water and warm water. As noted in the DEIR, the Basin Plan states that segments with both warm water and cold water beneficial use designations are considered cold water bodies for the application of water quality objectives. Therefore, the water bodies within the Project boundary, which reasonably includes Thermalito Afterbay, are considered cold water bodies for purposes of the beneficial uses analysis. The Basin Plan defines the cold water habitat beneficial use as “Uses of water that support coldwater ecosystems, including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, or wildlife, including invertebrates.”

Water from Thermalito Afterbay is used to meet the needs of agricultural diverters as well as cold water beneficial uses. Baseline Oroville Facilities release water temperatures are dictated by the flow and water temperature compliance requirements mandated by DFG and NMFS. Section 4.2.2 of the DEIR describes the water temperature management requirements under baseline conditions. The release temperatures from Oroville Dam are designed to meet Feather River Fish Hatchery and Robinson Riffle temperature requirements included in the 1983 DFG Agreement and the Operations Criteria and Plan (OCAP) Biological Opinion.

Based upon the discussion above, agricultural beneficial uses are met under baseline conditions when considering water for agricultural purposes is drawn from a water body that is designated as cold water habitat, the operations of which are dictated by regulatory requirements for the preservation of Endangered Species Act (ESA)–protected cold water fish, and that the requirement for agriculture as set forth in the Basin Plan calls for an unspecified quantity of water to be delivered for irrigation with no specified requirement that the water be of a certain temperature. In light of these considerations, the Project currently meets all of the designated beneficial uses set forth in the Basin Plan.

3.2.3.2 Several Significant Factors Contributing to the Effects on Irrigated Agriculture Beneficial Use are Outside of DWR's Control

Water temperatures at the location where irrigated agricultural beneficial use occurs (i.e., in the irrigated fields) are only determined in part by the water temperatures at the agricultural diversions. Source water temperature, air temperature (or solar radiation), wind, diversion volumes, and residence times in Thermalito Afterbay and the district canals (which determines the amount of warming of water that will occur prior to use) are all factors that affect the water temperatures at the inlets to the rice fields. The inlet to the rice field is the location where the irrigated agriculture beneficial use first occurs. Residence time of water in Thermalito Afterbay is dictated in part by the volumes of the agricultural diversions. The agricultural diversion volumes typically exceed the total volume of releases of Thermalito Afterbay to the lower Feather River during some portions of the early water temperature–sensitive growth period for rice. During the period of time when the agricultural diversion volumes exceed Thermalito Afterbay Outlet volumes, the agricultural diversion volumes are the dominant factor in determining the residence time of water in Thermalito Afterbay and, therefore, would be most responsible for the lack of water warming in Thermalito Afterbay prior to diversion. Of those four factors that determine water temperatures at the rice field inlets, DWR controls only one, source water temperature, and can influence only one other, residence time of water in Thermalito Afterbay.

Additionally and most importantly, the amount of rice yield loss that occurs with a given water temperature at the inlets is controlled by the volume of water applied to the field, variety of rice planted, planting timing, and weather conditions that dictate the rate of warming of water in the field. Of those four critical factors that determine the amount of rice yield loss that would occur with a given water temperature at the field inlet, DWR cannot control or even influence *any* of these critical factors that determine the amount of rice yield loss that would occur.

3.2.3.3 Additional Factors Must Be Considered in Determining Whether the Existing Project Meets the Beneficial Uses

Consideration of only one factor in the assessment of impacts on irrigated agriculture beneficial use (i.e., water temperature) would result in an incomplete evaluation of whether the beneficial use is currently met under baseline conditions. All facets of irrigated agriculture should be considered when evaluating whether the agricultural beneficial use is being met.

The beneficial use analysis considers the benefits that the Project currently provides under baseline conditions. The benefits provided to irrigated agriculture from the Oroville Facilities include increased water supply reliability and increased water supply. These components of the beneficial use are particularly relevant because water supply is the principal component of the irrigated agriculture designated beneficial use.

3.2.3.4 The Existing Project Provides a Reliable Water Supply

Current Oroville Facilities operations result in a substantial benefit to irrigated agriculture by increasing the reliability of the water supply. Without the storage that the Oroville Facilities provide, the senior agricultural water rights holders would not be able to reliably irrigate as many acres in some years as they do under current conditions. The benefit provided by the Oroville Facilities to the irrigated agriculture beneficial use is clearly of a significantly greater magnitude than the rice yield losses that are occurring from the water temperatures delivered from the existing Project. The DEIR, Section 5.13.3, discusses the increased reliability of water supply benefits to irrigated agriculture beneficial uses. The following discussion is intended to clarify and amplify the materials presented in the DEIR and includes a quantification of the benefits to irrigated agriculture that the increased reliability of water supply provides.

Figure 3.2-1 shows the average monthly agricultural diversion volumes from the Thermalito Afterbay (blue line) with average monthly Oroville Reservoir inflows (green line) and average monthly inflows less the minimum lower Feather River flow requirements (red line). The average monthly volumes were calculated based on the period from 1969 through 2005, utilizing data presented in the DWR response to the water districts' intervention letter, which is posted on the FERC website. During all water year types, there is at least some period during which the agricultural diversion volumes exceed the flows that would be available for diversion from the lower Feather River without the Project. If the mandated minimum lower Feather River in-stream flow requirements are taken into account, the average agricultural diversions volumes exceed the average available water supply for 4 months of the year (period when the blue line of diversion volumes is higher than the red line of flows available for diversion).

Under those conditions, when diversions exceed the potential supply (period when the blue line is over the green line), if it were not for the storage provided by the existing Project the agricultural diverters could not logically divert more water than would be in the river. It is also unlikely that, even with their senior water rights, the agricultural diverters would be allowed to divert every drop of water in the river to the exclusion of all other designated beneficial uses, including fish and wildlife and downstream senior water rights holders (period when the blue line is over the red line). Even if the agricultural diverters were to divert the entire inflow, some acreage planted and farmed would have insufficient water to finish the crop season, resulting in catastrophic yield losses. It should be noted that the increase in water supply reliability is due to the water storage that the Oroville Facilities provide and that it is that same storage that also provides the capability to release colder water (as mandated by DFG and NMFS and specified in the Basin Plan) that can cause the cold water–related impacts on rice yields.

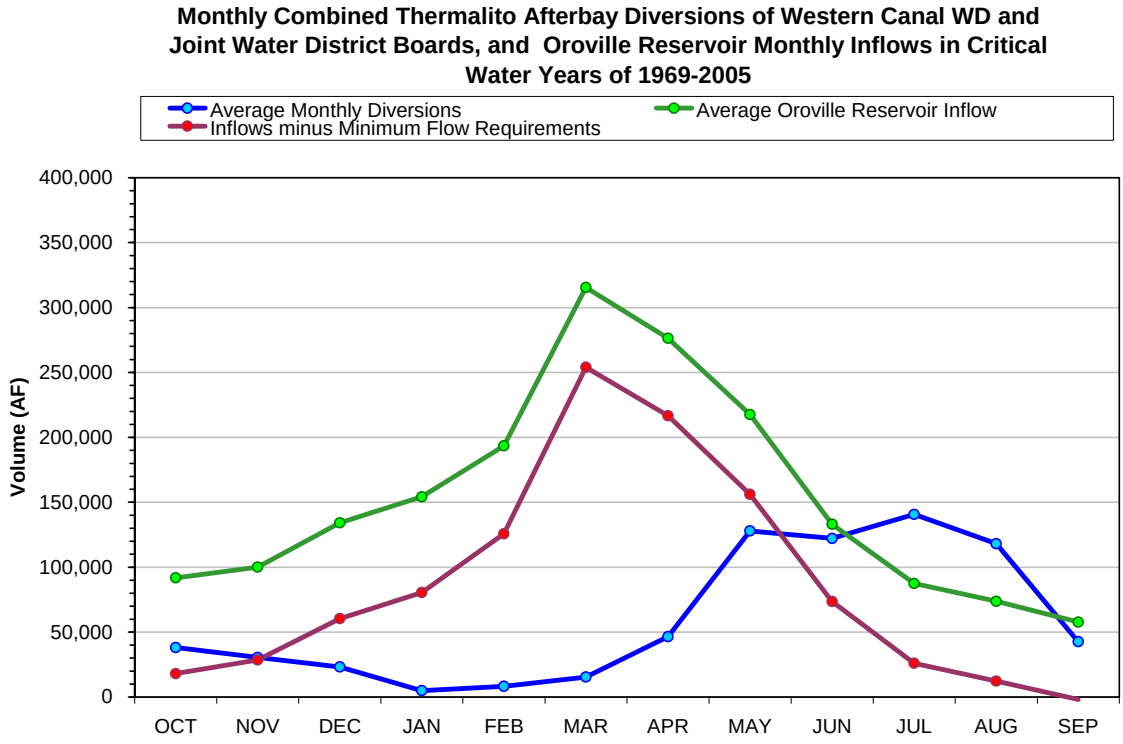

Figure 3.2-1. Average monthly Thermalito Afterbay agricultural diversion volumes and average monthly Oroville Reservoir inflows.

3.2.3.5 The Project Provides an Increased Water Supply for Post-Harvest Flooding

If it were not for the increased quantity of water delivered to the agricultural diverters as a result of their delivery contracts with DWR, they would not have an adequate water supply to grow the full available acreage to produce their crops or to engage in the cultural practice of post-harvest flooding of their fields. A majority of water delivered to the water districts that is above the quantity available without the storage provided by the facilities, as quantified in Figure 3.2-1, is utilized to flood the rice fields to facilitate the breakdown of rice straw. This post-harvest practice of field flooding is utilized in place of the previous cultural practice of burning rice straw, which has been phased down to 25 percent of its previous levels by the California Air Resources Board due to air pollution and public health problems.

Post-harvest flooding benefits for rice growers include improved decomposition of rice straw and the creation of seasonal waterfowl habitat. The improved decomposition of rice straw from post-harvest flooding reduces the number of cultivations required to break down the rice straw, which is a cultural practice cost reduction (i.e., forgone tillage costs), and reduces soil compaction, which can reduce rice yields. Without the additional water supply to support the cultural practice of post-harvest flooding, yields would be reduced from additional soil compaction and production costs would be increased as a result of the additional tillage required to break down the rice straw.

Additionally, the improved rice straw decomposition reduces fertilizer requirements for the following season and reduces the over-wintering of pests and diseases, which can reduce yields or increase control costs during the subsequent growing season. Without the additional water supply to support the cultural practice of post-harvest flooding, yields would be reduced due to increased incidences of pests and diseases. Further, production costs would increase due to the need for additional fertilizer, pesticides, and fungicides.

Water supplied by the Project also provides a significant benefit to the agricultural diverters through the creation of waterfowl habitat. This habitat, created by the post-harvest flooding, is a direct result of increased water supply from the Project, and provides a significant source of income for some rice growers. The habitat created by the post-harvest flooding allows farmers to lease duck hunting rights on their property, providing a significant economic benefit to the rice growers and the entire local economy.

The overall result of the increased reliability and increased quantity of water supply for these two interrelated and principal aspects of irrigated agriculture beneficial use is that the existing Project provides a substantial net benefit to irrigated agriculture when the relative magnitude and contribution of all of the effects on the irrigated agriculture beneficial use are considered together.

3.2.3.6 The Proposed Project Would Continue to Meet Basin Plan Beneficial Uses

Contrary to the assertions provided in some comments, the DEIR properly analyzed the Proposed Project for compliance with the Basin Plan. As described in Section 5.2.2 of the DEIR, DWR evaluated the Proposed Project for compliance with the Basin Plan designated beneficial uses, including irrigated agriculture. Compliance with water quality standards, including the Basin Plan designated beneficial uses, was one of the impact thresholds utilized in the DEIR evaluation of water quality; see DEIR Sections 4.2.2, 4.13, 5.2.2.5, and 5.13. The DEIR evaluation of the Proposed Project on irrigated agriculture beneficial uses in Section 5.2.2.5 concluded, “The irrigation use of water stored in Lake Oroville and re-regulated in the Thermalito Afterbay would continue to be protected through the Proposed Project.”

The Proposed Project would continue to meet the competing needs of providing a reliable water supply for irrigation, including post-harvest flood-up, while meeting water temperature criteria for the protection of cold water fisheries. Further, as discussed in Section 3.2.2.1, the impact on rice production from the Proposed Project would be small. However, increasing water temperatures to optimize irrigated agriculture yields would be at cross purposes and potentially detrimental to the more sensitive and ESA-driven conflicting designated beneficial use for cold fresh-water fisheries. As an example of the difference in sensitivity of these two beneficial uses, if water temperatures were reduced by 2^{o}F, an incremental increase in rice yield loss would occur. In contrast, in the event of a 2^{o}F water temperature increase, the effect on the cold fresh-water fisheries could result in the loss of a substantial portion of suitable

habitat in the lower Feather River, and in some cases, could result in lethal effects on the coldwater fisheries and cause reductions in ESA-listed species' populations.

3.2.4 The Settlement Between DWR and Agricultural Diverters Resolves All Outstanding Contractual and Economic Issues Related to Water Deliveries

The analysis reported in the DEIR in Section 5.13.4.1, Program and Project-Level Impacts and Mitigation Measures, shows that the Proposed Project would not have a significant impact on rice yields and that there is a less-than-significant physical impact on agriculture from the Proposed Project.

However, DWR and certain water districts on the Feather River have had long-standing issues related to agricultural production and the Oroville Facilities. In the 1960s, DWR and five water districts (WCWD [represented by its predecessor Pacific Gas and Electric Company], Richvale Irrigation District, Biggs-West Gridley Water District, Butte Water District, and Sutter Extension Water District [Districts]) entered into water right settlement agreements to settle water rights issues related to the construction of the Oroville Facilities and to provide for diversion of irrigation water from Thermalito Afterbay (Diversion Agreements). These early Diversion Agreements preserved the right of the Districts to later assert a claim regarding the operation of the Oroville Facilities and injury to agricultural production from changes in water temperature. In March 2008, DWR and the Districts signed the "Amendment to Agreements on Diversion of Water from the Feather River and Settlement of Issues related to the Temperature of Water Diversions" to resolve this outstanding water temperature issue and amend the Diversion Agreements. This settlement agreement amends the Diversion Agreements by providing that all past, present, or future claims of liability resulting from the delivery or diversion of cold water from the Oroville Facilities, and that could be brought by the Districts or growers within the Districts' service areas, are satisfied and resolved. The District's have withdrawn their opposition against issuance of a new FERC license to DWR for Oroville Facilities and rescind their comments on the DEIR. Copies of their letters sent to FERC and DWR requesting these actions are attached for informational purposes as Appendix B.

This settlement agreement addresses potential impacts that are related to the early water right settlement issues, which are separate from the CEQA analysis presented in the DEIR and FEIR. DWR has provided a copy of this settlement agreement to FERC for informational purposes, and has also attached it to the FEIR for informational purposes as Appendix C.

3.2.5 Literature Cited

Mutters, R. G. 2007. Spatial Distribution of Water Temperature Effects on Rice Productivity. University of California, Davis.

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3.3 THE RELATIONSHIP BETWEEN THE OROVILLE FACILITIES AND SOCIOECONOMICS

Numerous comments have raised concerns about the Proposed Project's social and economic effects, particularly comments from Butte County (County). This response is intended to clarify how these issues have been addressed in the DEIR. Specific responses to individual comments on socioeconomic issues are provided in the main section of the FEIR containing responses to individual comment letters.

3.3.1 CEQA and a Project's Social and Economic Effects

The DEIR for the Oroville Facilities Relicensing followed the requirements of CEQA and the State CEQA Guidelines in its approach to socioeconomic issues. Under CEQA, an EIR must identify a proposed project's significant effects on the environment (Public Resources Code, Section 21002[a]). The "environment" is defined as "the physical conditions which exist within the area which will be affected by a proposed project, including land, air, water, minerals, flora, fauna, noise, objects of historic or aesthetic significance" (Public Resources Code, Section 21060.5). Economic or social changes that a project may cause "shall not be treated as significant effects on the environment" (State CEQA Guidelines, Section 15131[a]). In other words, the economic or social changes that a project may cause are not, in and of themselves, significant environmental effects that require analysis in an EIR.

A project's social and economic effects may nevertheless be relevant to an EIR in two ways. First, the analysis in an EIR may consider a project's social and economic effects in determining the significance of physical environmental changes caused by the project (State CEQA Guidelines, Section 15131[b]). Second, the proposed project may cause social or economic effects that, in turn, create indirect physical changes in the environment (State CEQA Guidelines, Section 15131[a]). Indirect physical changes that are caused by the project's economic or social changes are analyzed in the same manner as direct physical changes in the environment (State CEQA Guidelines, Section 15064[e]). These indirect physical impacts must be discussed, but may be found insignificant (*Citizens Assn. for Sensible Development of Bishop Area v. County of Inyo* [1985] 172 Cal.App.3d 151, 168–170).

3.3.2 Social and Economic Effects Information in the DEIR and Background Reports

Economic and social information may be included in an EIR or presented in whatever form a lead agency chooses. The DEIR for the Oroville Facilities Relicensing includes several subsections on the Proposed Project's potential to cause social and economic changes and related indirect physical changes on the environment:

4.9 Population, Housing, and Public Services—Environmental Setting

4.10 Environmental Justice—Environmental Setting

4.14 Road Maintenance—Environmental Setting

5.9 Population, Housing, and Public Services—Impacts Analysis

5.10 Environmental Justice—Impacts Analysis

5.14 Road Maintenance—Impacts Analysis

6.1 Growth Inducement

6.2.10 Public Services Cumulative Impacts

Each of these sections in the DEIR also includes references to underlying data and analyses developed as part of the Alternative Licensing Procedure (ALP) before FERC. These documents include the reports for Study Plan R-19 (SP-R19) (Fiscal Impacts), SP-R13 (Recreation Surveys), SP-R1 (Vehicular Access Study), SP-R9 (Existing Recreational Use), SP-R18 (Recreation Activity Spending), and SP-R12 (Projected Recreation Use).

3.3.3 How the Proposed Project Would Result in Economic and Social Changes

Implementing the Proposed Project would continue operations of the existing hydroelectric and related facilities, with additional enhancements to benefit wildlife habitat and recreation opportunities. The enhancements to recreation facilities include additional and improved day-use facilities, parking, picnic tables, restrooms, campgrounds, and boating facilities (DEIR, pages 3.3-26 to 3.3-37). These enhancements and other Proposed Project components would generate socioeconomic effects in three ways:

- **Increased number of recreation visitors:** Enhanced recreation facilities and opportunities would draw additional visitors to recreation sites within the Lake Oroville State Recreation Area (LOSRA). To the extent that these visitors come from outside of Butte County, they would create a new demand for public services in the county, both for local service providers such as the County and the City of Oroville, and for State service providers, such as California Department of Parks and Recreation (DPR) rangers. Growth in visitation would increase the demand for law enforcement and criminal justice services, fire protection/emergency services, and road maintenance services, both inside and outside of the Project area.

- **Increased number of permanent residents:** The Proposed Project would add to the resident population in Butte County in two ways. First, the operations and maintenance of new and improved recreation facilities developed as part of the Proposed Project's SA Recreation Management Plan (RMP) would require additional agency spending and support some permanent new jobs in Butte County that could directly and indirectly increase the resident population. Second, the spending of recreation visitors would indirectly increase the resident population by creating new permanent jobs in local businesses that provide

goods and services to visitors. To the extent that new employment opportunities attract workers and their families who do not already reside in Butte County, the population of the local area could increase, thereby resulting in increased demands for public services and housing.

- **Increased number of in-commuting workers:** Implementation of the Proposed Project could attract additional workers to the county to fill temporary and permanent jobs required to construct and operate new and improved Project facilities. To the extent that these jobs are filled by workers who commute to job sites from outside of Butte County, these workers could create an increased daily demand for local public services.

The DEIR examines these three sources of permanent and temporary population in assessing how the Proposed Project would create a demand for increased public services that could cause a significant adverse effect on the environment.

3.3.4 The DEIR's Conclusions Regarding Social and Economic Effects

Contrary to the suggestion in several comments, the Proposed Project would not create public services burdens on the County that require mitigation. As stated in the DEIR (pages 5.9-8 to 5.9-9), the potential for an increase in the demand for public services and a local government's ability to pay for them is not, in and of itself, a significant effect on the "environment" that requires mitigation. The DEIR correctly analyzed whether the Proposed Project would directly or indirectly create an increased demand for public services such as law enforcement, fire protection, schools, parks, and emergency medical services sufficient to result in the need for new or altered facilities that could affect the physical environment. In this way, the DEIR assessed the cause and effect from the Proposed Project's changes to the environment, its socioeconomic effects, and the potential for the socioeconomic effects to create further changes in the environment. (State CEQA Guidelines, Section 15131.)

The DEIR did not, however, conclude that the Proposed Project would create significant impacts on the physical environment related to the provision of public services that would require mitigation. The DEIR (pages 5.9-13 to 5.9-15) acknowledged that the Proposed Project would directly and indirectly increase the demand for public services relative to Existing Conditions, but concluded that the impact on the physical environment was less than significant. The DEIR provided a number of reasons for this conclusion:

- The increased demand for public services would be small and would not trigger the need for new or expanded facilities.

- The small increase in demand would be spread among many potential responders, including State agency law enforcement.

- The small increase in demand for public services would occur gradually over time.

- The Proposed Project itself includes provisions for additional law enforcement personnel described in SA Article B111.

Additionally, the small increase in the demand for public services generated by the Proposed Project would not be concentrated entirely within and near the LOSRA. Rather, the demand for public services would be dispersed throughout Butte County to some extent, dictated by the travel patterns of Oroville Facilities visitors and employees, and by the residential locations of Oroville Facilities employees and the population indirectly supported by the Proposed Project. This dispersed demand for public services would lessen the demand placed on any one facility, such as a fire station, further reducing the need for new or expanded facilities within Butte County.

Even if a project's direct and indirect effects are less than significant, the project's contribution to a cumulatively significant effect may still be considerable, and mitigation may be required. The DEIR evaluated cumulative effects on public services in Section 6.2.10. The discussion acknowledged the role that construction of the Oroville Facilities in the mid-1960s and ongoing Oroville Facilities operations and maintenance have played in creating an increased demand for public services in Butte County (DEIR page 6.2-55). The DEIR also described the role of other past residential, commercial, and industrial development in creating a demand for public services and briefly touched on structural budget challenges facing Butte County. The DEIR concluded that the Proposed Project's incremental contribution would not be cumulatively considerable and therefore no mitigation was required.

3.3.5 Butte County's Claim of Unfairness

Butte County stated that its primary concern with the proposed Oroville Facilities operations is "the unfairness the proposed project would perpetuate" (page 2 of the County's comments; see Chapter 5.0 of this FEIR).

The County's position appears to be based in part on an assumption that historically the Oroville Facilities' water and energy resources have been transferred out of the county to benefit out-of-county users, and that the County has been left with a project that would increase flood potential within the county and that results in a net economic loss to the County. On page 1 of its comments, the County states: "[D]espite offering important economic benefits to other areas of the state, project operations create a substantial burden upon Butte County, and the proposed action may create additional burdens, particularly as future climatic and environmental conditions change."

Having assumed that the Project prior to the Oroville Facilities Relicensing action caused negative economic impacts, the County then appears to argue that the DEIR analyzed the "impacts of its proposed project by identifying the ways in which the new project operation rules will be different from old project operating rules" even though perpetuating existing rules "could lead to additional harms beyond those that have already occurred" (page 4 of Butte County's comments).

In addition, the County argues that DWR has incorrectly characterized the cumulative effects of the project as not "cumulatively considerable" because they are "minor" or constitute a "small increase" or "slight incremental addition." The County maintains that "any service demand added to the prior demands created by the project constitutes a significant impact (or a significant consequence of the project's environmental impacts) and DWR must avoid such contributions by contributing its 'fair share' to mitigation programs" (page 6 of Butte County's comments). The County cites *Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal. App. 4th 98 for support for its position.

The County then appears to argue that DWR has refused to mitigate the perpetuation of these existing harms and for new harms caused by the Proposed Project, thereby forcing the County to unfairly pick up the costs of mitigating these harms. The County relies on *City of Marina v. Board of Trustees of Cal. State University* (2006) 39 Cal. 4th 341 for the proposition that "DWR must remedy that unfairness" because DWR "cannot forego mitigation on the assumption that other agencies will pick up its slack" and that DWR is obligated "to fund or provide the services now provided by Butte County" (page 3 of Butte County's comments).

The County also claims that "notwithstanding the DEIR's claims that the ALP process was extraordinarily open and inclusive, Butte County was excluded from the settlement negotiations and has legitimate grievances that were not addressed" (page 1 of Butte County's comments).

The DEIR provides ample evidence that the current Oroville Facilities Relicensing operations do not create a substantial burden on Butte County and that service-related impacts of the Proposed Project would not cause physical changes in the environment that could lead to a significant impact. The County's argument that the Oroville Facilities Relicensing operations perpetuate an unfair condition is unfounded.

3.3.5.1 The Proposed Project Would Not Constitute a Perpetuation of an Unfair Economic Condition

DWR recognizes that Butte County "remains one of the poorest and most distressed in the state, and that economic condition continues to strain the county's social service network." However, the DEIR does not support the County's contention that the existing Oroville Facilities have created this economic condition or that the Proposed Project would perpetuate an unfair economic condition. Even if the County is correct in its assumption that the Oroville Facilities have contributed and that the Proposed Project would contribute to a poor economic condition, or that it provides social and economic benefits to the rest of the state at the expense of Butte County, this is not a CEQA issue unless these social and economic factors would cause a physical change that would result in significant adverse environmental impacts. The DEIR does not support the County's contention that any increase in Butte County services caused by the Proposed Project would result in significant environmental impacts. The DEIR also does not support the County's contention that DWR has failed to provide its "fair share" of an increased demand on services within the county.

Butte County claims that the County's "dire economic condition" is due wholly or in part to the Oroville Facilities. The supporting information provided by the County on this issue was compared by both DWR and FERC to the information developed by DWR for the FERC Relicensing process. Where two technical studies conflict, an agency's responsibility is to review, compare, and contrast information and disclose the differences. It is not required to accept all information provided by others and can conclude that the information provided is incorrect or not relevant. Both DWR and FERC determined that Butte County's information was not convincing. Comments from the County and others on the DEIR have not provided any new information on this issue that would change the findings of the DEIR. The FEIR thus confirms the conclusion of the DEIR that Butte County's current dire economic condition is not a result of the Oroville Facilities and that there is therefore no "harm" that would be perpetuated under the Proposed Project.

3.3.5.2 The Proposed Project Would Not Result in a Significant Direct or Indirect Impact Related to Public Services

The FEIR also compares the information provided by the County to the information in the DEIR with regard to the economic or fiscal impacts caused by operation of the Proposed Project. Both DWR's FEIR and FERC's FEIS also confirm the conclusion that while there may be "minor" or "small" increments in services needed from the County (less than 0.6 percent increase between 2003 and 2020, of which half would be due to non-Project related increases), they would not rise to the level where they would cause a physical change that results in an environmental impact that must be mitigated under CEQA.

3.3.5.3 The Proposed Project Would Not Result in a Significant Cumulative Impact Related to Public Services

The FEIR also comes to a similar conclusion with regard to cumulative impacts. The case cited by Butte County (*Communities for a Better Environment*) does not stand for the proposition that *any* service demand added to the prior demands created by the project constitutes a significant impact. In fact, that case makes it clear that it does not stand for the proposition that "any molecule" increase in an already adverse condition constitutes a significant adverse environmental impact (*Communities for a Better Environment v. California Resources Agency* [2002] 103 Cal. App. 4th 98, 120).

The DEIR concluded that the Proposed Project's incremental contribution would not rise to the level where it would be considered cumulatively considerable and must be mitigated under CEQA. This conclusion is based in part on the fact that the increased service-related increases would be "minor" or "small" (less than 0.6 percent increase between 2003 and 2020, of which half would be due to non-Project related increases) and would occur gradually over a 50-year period.

In addition, the DEIR provides evidence that the costs of the increased services to Butte County would be minimized by the fact that some of the costs would be picked up by other entities, including DPR, and the Proposed Project would pay for some of the

increased costs by funding 9.5 new full-time State positions. The DEIR also provides evidence that the Proposed Project would positively contribute to the economy of Butte County through increased numbers of residents and visitors who purchase goods and services in Butte County and through the provision of no- or low-cost high-quality recreational facilities.

3.3.5.4 DWR Is Not Obligated to Mitigate Effects on Public Services of the Proposed Project if the Effects Would Not Result in a Significant Environmental Impact

Butte County's reliance on *City of Marina* for the proposition that DWR must fund or provide services now provided by the County is misplaced. In *City of Marina*, California State University, Monterey Bay, agreed that expansion of the university would have significant economic and social impacts that would require extensive new infrastructure outside of the university area that would constitute a significant environmental impact, but argued that it did not have the authority to pay for, fund, or provide for the new services. The court found that the university was incorrect in its assumption that it did not have the authority and required the university to revise its analysis and EIR in light of its authority to mitigate. The court recognized that in its new analysis, the university might still decide not to mitigate (or mitigate fully) the environmental impacts caused by the increased need for services because it found mitigation infeasible for other reasons. The *City of Marina* case is very different from the Oroville Facilities Relicensing, where there is no evidence that any increase in services would lead to a need for new infrastructure.

3.3.5.5 DWR Agrees that It Is Responsible for Proper Management and Funding of the Oroville Wildlife Area and Other Oroville Recreational Facilities

Butte County makes the point that DWR is ultimately responsible for proper management and funding of the Oroville Wildlife Area (OWA) and other Oroville recreational facilities, then appears to argue that DWR is evading that responsibility (page 21 of Butte County's comments). DWR is in full compliance with its responsibilities under its current license and associated FERC orders. DWR has consistently asserted its awareness of and commitment to proper management and funding of recreation facilities—including facilities within the FERC Project boundary within the OWA—in the proposed RMP and elsewhere.

3.3.5.6 Butte County's Claim that the County Was Excluded from Settlement Negotiations and Has Legitimate Grievances is Not Supported by the Facts

The ALP encourages a collaborative process in which all participants are involved in the scoping of the issues, submitting study requests, formulating study scopes, reviewing study results, and commenting on the license application and subsequent FERC DEIS. Butte County was involved in the ALP from the very beginning and participated extensively in the settlement discussions. During the final phase of the negotiations, the ALP participants were asked whether they intended to enter into the Settlement

Agreement; the County indicated that it did not. At that point it was clear that there was no value in continuing negotiations with the County, so it was asked to no longer participate. It should be noted, however, that the County actively participated in almost all of the settlement negotiations and the development of the proposed settlement actions, which are analyzed in the DEIR as the Proposed Project. Further, the County's legal representatives attended almost all of the SA drafting meetings and had an active role in the drafting of the SA. As a result of their participation, concessions were made to the County during the drafting meetings.

The County offered documentation regarding its view of an appropriate "fair share" of the Proposed Project's fiscal impact on the County. Both DWR and FERC reviewed the information and determined that it did not constitute an environmental impact that needed mitigation under the FERC licensing procedure, NEPA, or CEQA.

3.3.6 Project Benefits

Butte County stated that there are several general themes underlying all of its comments. Among them is the assertion that the County has not received any economic benefits as a result of the existence of the Oroville Facilities, and that in fact the facilities have been an economic drain on the County. The basis for this contention is a series of reports sponsored by the County that present estimates of Project-related public service impacts and forgone property tax revenues, and estimates of purported health and human service cost burdens on the County stemming from construction of the Oroville Facilities during the 1960s.

These analyses supplied by the County are in contrast to studies and reports completed as part of the ALP process. A look at the broad economic benefits provided by the Oroville Facilities puts the impacts of the Oroville Facilities in proper perspective.

The benefits of the Oroville Facilities to the economic well-being of Butte County residents have been described in reports (TCW Economics, CH2MHill) and other filings submitted to FERC (DWR 2006a, 2006b, 2007). These reports and subsequent filings at FERC cite specific benefits to Butte County that include but are not limited to providing the community with high-quality lake recreation opportunities that support a local recreation economy, a reduced risk of major flooding, a reliable supply of water for local farmers, and the reduced cost to local governments for providing certain essential services.

3.3.6.1 Recreation and the Local Economy

Lake Oroville is the fourth largest reservoir in California in terms of surface area. When full, the lake has more than 15,000 surface acres and 170 miles of shoreline that provide a vast array of water-based recreation activities. In addition, the Thermalito Diversion Pool, Thermalito Forebay, and Thermalito Afterbay provide an additional 5,200 acres in surface area and 46 miles of shoreline. Fishing opportunities at Lake Oroville and along the downstream Feather River are considered among the best in the state. As reported in the *Sacramento Bee* on August 23, 2007, the LOSRA was

recently named as one of the top 100 places in the nation to camp by the Official Camping Club, a group that bills itself as “America’s largest community of active family campers.”

The diverse nature of recreational opportunities at Lake Oroville attracts local and out-of-area visitors seeking a high-quality recreational experience. In fiscal year 2002-03, the Oroville Facilities supported more than 1.7 million recreation days, of which more than half were by local residents. The OWA is visited free of charge by more recreationists, anglers, and hunters than any other wildlife area in the state. Prior to the development of the Oroville Facilities, the lands within the OWA had been substantially degraded and rendered largely unusable by dredging activities in the late 1800s and early 1900s. These lands have since been substantially improved as a part of development of the Oroville Facilities, and recreational fishing and hunting values of the OWA, an area totaling approximately 5,500 acres, have benefited greatly from the Oroville Facilities.

Recreation activity at the Oroville Facilities fuels a local recreation economy. The Oroville Facilities benefit the local and regional economy by attracting visitors who purchase goods and services in the area, and by stimulating the economy through local expenditures on the ongoing operation and maintenance of the Oroville Facilities. Recreation-related spending by out-of-county visitors annually supports an estimated 555 jobs and about $10.6 million in earnings in Butte County. Expenditures by DWR and other State agencies on operation and maintenance at the Oroville Facilities support an additional 498 jobs and $15.2 million in earnings annually (DWR 2004).

3.3.6.2 Flood Protection Benefits

A portion of Butte County lies within the flood inundation area for the Feather River. According to information in the U.S. Army Corps of Engineers’ 2002 Comprehensive Study and subsequent updates to Feather River floodplain mapping, roughly 75,000 acres of urban, rural residential, agricultural, and other Butte County lands are currently at a greatly reduced risk to Feather River flooding due to the presence of the Oroville Facilities. This includes over 1,000 acres of densely developed urban property, about 6,000 acres of rural residential property, and roughly 20,000 acres each in rice and orchard crops downstream of Oroville Dam. Because of the presence of the Oroville Facilities, which improved the level of flood protection for these lands by up to tenfold, a significant portion of this area currently has the lowest flood risk of any land in the entire Sacramento Valley. Based on land value information and flooding probabilities, DWR estimates that the value of flood protection to Butte County afforded by the Oroville Facilities ranges from about $6.6 million to $12.2 million annually.

The level of flood protection to Butte County and surrounding counties provided by the Oroville Facilities has allowed the region to develop over the past 40 years. Since completion of the Oroville Facilities in the late 1960s, acreage of fruit and nut crops in Butte County has risen from about 36,900 acres in 1962 to about 88,600 acres in 1999, an increase of more than 240 percent. Additionally, the population of Butte County has more than doubled since 1970 (215,000 persons in 2005 compared to 102,000 persons

in 1970) (TCW Economics 2006) and is projected to increase to 441,600 by 2050, an increase of more than 100 percent compared to the current population (California Department of Finance 2007).

In summary, flood protection provided by the Oroville Facilities has played an important role in accommodating past and present economic growth in Butte County and will continue to allow economic development in the county to expand in the future. Without the Oroville Facilities, Butte County would face an ongoing threat of catastrophic flooding, jeopardizing the potential for future economic growth and the associated benefits to the residents of Butte County.

3.3.6.3 Benefits of Reliable Local Water Supplies

The Oroville Facilities contribute to the economic well-being of Butte County farmers by providing increased water supply reliability. The enhanced storage capacity and operational flexibility of the Oroville Facilities have allowed water users in the Feather River Service Area (FRSA) with superior water rights to divert and use substantially more water annually (on average, approximately 200,000 acre-feet per year [afy]) than prior to the existence of the Oroville Facilities. The availability of a reliable and increased water supply provided by the Oroville Facilities during the critical summer and fall growing season has contributed to the substantial increase in the acreage of rice harvested in Butte County.

3.3.6.4 Reduced Local Government Expenditures

Although DWR, as a State agency, is exempt from property taxes, DWR directly and indirectly supports many programs in Butte County that help reduce costs to local government. These programs include:

- DWR and its Resource Agency partners with a codified role at the Oroville Facilities provide funding of roughly $2 million per year in State law enforcement services both within and outside of the LOSRA, resulting in peace officer levels of service in the Project No. 2100 service area that are about 400 percent higher than levels of service elsewhere in the county.

- DWR provides funding of about $300,000 annually for maintenance of local bridge structures and County roads within the Project area.

- DWR, at its sole discretion and pursuant to State Water Project (SWP) contracts and annually recurring requests by Butte County, has reduced, as of 2006, the County's cost allocation for the SWP by over $15 million (in 2006 dollars) since 1978 (derived by applying the 2006 Delta Water Rate to all forgone water deliveries).

- Discretionary, non-FERC license activities cosponsored, directed, or administered by DWR provide roughly $3 million a year in benefits to Butte County. This includes events like the annual 4th of July Lake Oroville fireworks

show, regarded by many as among the best in Northern California; the Annual Oroville Salmon Festival; and the CAST (Catch A Special Thrill) for Kids events.

For most local jurisdictions, providing and maintaining recreation facilities for local residents is a costly budgetary requirement. For the 215,000 residents of Butte County, the existence of the State-maintained, 28,000-acre LOSRA substantially reduces this budgetary burden. Based on budgetary information available from the report *Counties Annual Report, for the Fiscal Years Ending June 30, 1999, through June 30, 2004* (California State Controller's Office 2006), the ten other counties in the Sacramento Valley region spent, on average, more than $8 per county resident for recreation facilities and services during the 2003-04 fiscal year. During the same fiscal year, Butte County spent about 5 cents per capita. Further, an estimated two-thirds of all designated recreational areas in Butte County are within the Project area (i.e., within the licensed FERC Project boundary). This strongly suggests that the presence of the Oroville Facilities substantially obviates the need for annual expenditures by Butte County to provide recreational services to its residents.

It should also be noted that Butte County is one of the 29 long-term water contractors with annual allocations of SWP water. As such, water deliveries from Lake Oroville, a key component of the SWP, directly and indirectly benefit residents of Butte County. Power generated by the Oroville Facilities and sold or exchanged is applied as a savings to all SWP water contractors paying transportation costs, thereby lowering the cost of water to all end users.

3.3.6.5 Additional Benefits of the Proposed Project

All of the benefits described above would continue under the Proposed Project as defined in this FEIR. In addition to the ongoing benefits of the Project, DWR has offered significant funding for new measures and project enhancements that would provide a broad range of additional economic benefits to Butte County and the rest of the region, including the following:

- The Supplemental Benefits Fund of $61 million provided for in the SA, which is intended to fund projects that benefit the entire county and region. A Project example is the $5 million already expended as an interim measure during the FERC relicensing process on Riverbend Park, which is, for the most part, located within unincorporated Butte County.

- DWR committed in the SA to provide DFG with annual cost-share funding to manage the OWA. DWR has entered into an interagency agreement with DFG for approximately $750,000 per year to fund various DFG positions that will benefit all visitors to this part of the Project area while increasing the protection and preservation of wildlife and its habitat. DWR also committed to provide over $232,000 for DFG to purchase new equipment.

- DWR committed in the SA to fund about $500 million of recreation improvements to enhance the quality of recreation at the Oroville Facilities, thereby contributing

to more recreation tourism and greater enjoyment by Butte County residents. An additional $500 million in preservation and enhancement measures for fish and wildlife and their habitat, as well as measures to preserve and protect cultural resources, are also targeted for the Project area and Butte County. This collectively includes over $150 million in capital improvements slated to be made over the first 10 years of a new FERC license, benefiting recreation, the environment, and historic and cultural resources.

California counties face difficult fiscal challenges in large part because they are required by State and federal mandates to provide services that generate governmental costs that are not necessarily offset by local public-revenue sources. These mandates make keeping the fiscal house in order challenging. The array of programs and funding sources associated with the Oroville Facilities, under both Existing Conditions and the Proposed Project, will help Butte County and other local governments to meet these challenges in future years.

3.3.7 Literature Cited

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3.4 THE RELATIONSHIP BETWEEN THE OROVILLE FACILITIES AND CLIMATE CHANGE

Comments on the DEIR relating to climate change covered a wide spectrum of issues but generally related to (1) the adequacy and level of analysis—specifically, whether climate change is a reasonably foreseeable future condition that should be taken into account in the modeling done to simulate future Project operations; and (2) how climate change could result in future changes in inflow hydrology, changing baseline conditions, future operations, and future flood management. These comments were received from Butte County, the Plumas County Flood Control & Water Conservation District, and the Planning and Conservation League Foundation. This response is intended to clarify the relationship between the Oroville Facilities and climate change. Specific responses to individual comments on climate change issues are provided as appropriate in Chapters 5.0 and 6.0 of this FEIR. The commenters did not provide any additional new information or analysis in reference to climate change analysis.

3.4.1 Climate Change as a Reasonably Foreseeable Future Condition

As stated in the DEIR, Section 6.2.3.3, it is questionable whether climate change is a reasonably foreseeable "action" or "probable future project" in the CEQA context for purposes of discussing cumulative impacts. Climate change is neither an "action" nor a "project." Climate change can be characterized as a change in future conditions under which the Proposed Project will operate. These future conditions have the potential to influence the type and magnitude of the Proposed Project's contribution to cumulative impacts. For this reason, the DEIR included a discussion of climate change in the cumulative impacts analysis. The discussion notes the many uncertainties about the magnitude of climate change over the next century, but provides a summary of what the currently available research predicts for regional climate change that may be relevant to the Proposed Project. The Proposed Project is to obtain a new 50-year license from FERC to continue operations of the Oroville Facilities power plants. As such, there will be further opportunities in the future, at the next Relicensing period, as more is learned about climate change to make more definitive statements about the extent of climate change–related impacts on the operation of the Oroville Facilities.

DWR's 2006 report *Progress on Incorporating Climate Change into Management of California's Water Resources* (DWR 2006) indicates that regional climate changes could result in future changes to both quantity and timing of precipitation in the region and runoff into Lake Oroville and other SWP and Central Valley Project (CVP) reservoirs, which, over the long term, could affect water quantity, water quality, aquatic resources, recreation, cultural resources, and agricultural practices. These future environmental conditions are independent of the Oroville Facilities and its operations. The Proposed Project provides operational flexibility to adapt to a wide array of future hydrologic conditions caused by climate change, such as SA Article A107, which calls for operational changes in response to water temperature needs at the hatchery.

Climate change is discussed in the Cumulative Impacts section (Section 6.2) of the DEIR. More specifically, Section 6.2.3.1 discusses recent legislation in California

dealing with climate change; Section 6.2.3.2 discusses DWR's efforts toward dealing with climate change; and Section 6.2.3.3 summarizes qualitatively what is known about potential consequences of climate change and the current state of uncertainty. In Section 6.2.5.1 (Water Quantity) the DEIR acknowledges the inability to model climate change effects utilizing CALSIM II, and describes current efforts to resolve the issue by incorporating climate change data into future modeling efforts simulating the integrated SWP/CVP operations. Furthermore, the DEIR acknowledges that warming and reduction to the state's snowpack would affect the operation of most major multi-purpose reservoirs at low and mid-elevations in the Sierra Nevada, including those at the Oroville Facilities. Potential climate change effects are also discussed under cumulative impacts for water quality, aquatic resources, recreation resources, cultural resources, and agricultural resources under their respective headings in Section 6.2.

Given the current quantitative uncertainties regarding climate change and its potential effects on California, particularly local effects of climate change and potential impacts on the Feather River watershed, any discussion of potential changes to operations of the Oroville Facilities necessitated by climate change would be speculative at this time. In the broader context of how operational actions under both existing and future conditions were evaluated in the DEIR for each of the potential alternatives, it is apparent that a sufficiently broad range of potential future hydrologic conditions was in fact applied to all existing or proposed actions. The hydrologic conditions applied appropriately reflect the extremes in annual climate variability, from very dry hydrologic cycles to very wet hydrologic cycles that could be expected over the next 50 years. This is because Oroville is entirely encompassed within a single watershed area. Therefore, this DEIR did not need to evaluate both modifying and magnifying hydrological possibilities downstream beyond the confluence of the Feather River with the Sacramento River and into the San Francisco estuary, an area that is outside of the FERC Project boundary and outside the area of evaluation.

3.4.2 Future Hydrologic Changes

Historical Feather River flows, and thus inflows to Lake Oroville, have varied significantly from year to year, reflecting the highly variable climate in the region. Over the historical period of record covering water years 1906–2007 (i.e., approximately a 100-year period), the historical annual unimpaired Feather River flow at Oroville (as computed by DWR) has varied from a low of 994,460 acre-feet (af) in 1977 to a high of 9,492,400 af in 1907. Future reservoir inflows can be expected to vary significantly in the same manner, with some years having high inflows and some low.

Extensive operations modeling performed in support of both the Preliminary Draft Environmental Assessment (PDEA) and subsequent DEIR reflects the above variability, analyzing 73 different inflow years into Lake Oroville. This covers a truly wide range of hydrologic conditions, from multi-year dry periods where releases were very restricted to wet periods that triggered flood management operations to take effect. This modeling was designed to provide input to the environmental analyses such that alternatives could be evaluated under a broad range of potential future hydrologic conditions that reflect the expected variability in regional climate.

Over the coming decades, DWR expects rainfall, snowmelt, and runoff patterns to be different from year to year, just as they have historically varied significantly on an annual basis. As such, the measures included in the DEIR were formulated and analyzed to successfully operate under a very broad range of anticipated hydrologic conditions. In addition, Lake Oroville has sufficient storage capacity to regulate annual inflows, regardless of how those change each year. As such, DWR has already done predictive modeling that would illustrate how the Proposed Project might operate under future potential climate change by using historic runoff information that could affect the annual runoff patterns into Lake Oroville. None of the Project alternatives, including the No-Project Alternative, alters the net amount of water released from the Oroville Facilities over baseline conditions. Furthermore, the range of annual reservoir drawdown is nearly identical for all alternatives. Therefore, the effects of climate change on future project operations would be essentially the same under each alternative, so comparison of environmental effects between alternatives, including the No-Project Alternative, would not be affected by climate change assumptions.

While the probabilities and temporal distribution of given storms or water year types may change over time, this same wide level of variability that has occurred over the last 100 years is expected to continue for the foreseeable future, and that variability is reflected in the studies conducted to analyze project operations over the anticipated 50-year term of the new FERC license. For the purpose of comparing alternatives and evaluating impacts for the DEIR, it would be speculative to further analyze potential future inflow and outflow patterns from Lake Oroville under purely hypothetical climate change scenarios beyond the current level of analysis.

3.4.3 Changing Baseline Conditions

The DEIR uses the appropriate baseline for the analysis, which for the purpose of the DEIR is defined by the issuance of the Notice of Preparation. The Notice of Preparation was issued in 2001. Chapter 4.0 of the DEIR therefore describes the environmental conditions for each resource area as of 2001. It is not appropriate to use a sliding scale for a baseline in the environmental analysis as suggested by commenters (the Plumas County Flood Control & Water Conservation District and the Planning and Conservation League Foundation). Still, Section 6.2 provides a reasonable degree of forecasting to describe how the Proposed Project could potentially contribute to significant environmental impacts, in conjunction with past, present, and probable future projects and reasonably foreseeable climate change.

3.4.4 Future Operations

Several commenters (the Plumas County Flood Control & Water Conservation District, the Planning and Conservation League Foundation, and Butte County) questioned the Project's ability to meet its operational commitments related to managing temperature for fisheries, recreation, flood management, and water supply under climate change conditions. No new information was provided by the commenters. As stated earlier, the measures included in the DEIR were formulated and analyzed to successfully operate the Oroville Facilities' water storage components to meet downstream release

requirements under a very broad range of anticipated hydrologic conditions. This is particularly true for the actions proposed to protect and enhance the lower Feather River fishery and associated habitat, as the efficacy of these actions was paramount in the formulation of the proposed measures included in the various alternatives studied.

Under the Proposed Project, the Oroville Facilities will continue to operate to optimize the use of the cold water pool in Lake Oroville to benefit the downstream fisheries and meet other Basin Plan objectives.

The recreational features of the facilities are designed to be used within this broad range of hydrologic conditions. Furthermore, the Proposed Project includes the goal to study and potentially develop additional facility improvements that will allow greater access to Lake Oroville's cold water pool even during periods with lowered water surface elevations.

The future operations for flood management will continue to be governed by the rules and regulations dictated by the U.S. Army Corps of Engineers (USACE). However, as explained below, the Oroville Facilities are designed to safely pass extreme flood flows, including those that may occur under various climate change scenarios. This point is also demonstrated by the fact that the Oroville Facilities safely accommodated the two largest flood flows in roughly 100 years of recorded precipitation data for the Feather River basin without necessitating the use of about two-thirds of Oroville Dam's flood discharge capacity.

Any decision that may be made to change operations at the Oroville Facilities in the future in specific response to changed climate conditions outside the bounds of current information would be a separate decision not associated with the relicensing of FERC Project No. 2100, and would be supported by separate environmental analysis.

As indicated in the DEIR, Section 3.2.2.6, page 3.2-10, and corroborated by FERC in its FEIS, USACE has jurisdiction over flood management operations at Lake Oroville, and this is not subject to, or affected by, the Relicensing process.

Oroville Dam and its spillways are designed to safely pass the Probable Maximum Flood (PMF). The PMF inflow value is derived through extensive hydrologic and climatologic studies. It reflects the fact that extreme climatic conditions such as those theorized by individuals concerned about our planet's ever-changing climate are possible in future years, and that those extreme climate conditions could cause rapid runoff into lakes and reservoirs. For the Feather River basin, the current calculated PMF peak inflow to Lake Oroville is more than double the highest recorded historic flow on the Feather River (DWR 2004). In addition, the PMF routing assumes that the reservoirs are full to the spillway crest at the beginning of the flood event. This is a conservative assumption. Annual reviews of dam safety repeatedly confirm that the maximum flood-storage and peak-discharge attenuation volume of 750,000 af, mandated by USACE, ensures safe operations at Oroville under extremely wet, and to date not experienced, hydrologic conditions.

A potential consequence of climate change on flood operations is that a higher percentage of the inflows may come earlier in the year and in the form of direct runoff from rainfall. Such a scenario could require that the Oroville Facilities release water that otherwise may have been captured in Lake Oroville had precipitation either fallen later in the year or contributed to the basin's winter snowpack. If the snowmelt season were to shift to earlier in the year as a result of global warming, the amount of runoff that could be stored for use later in the year could potentially be reduced: Runoff would be occurring when flood control requirements dominate reservoir storage requirements, and therefore, those additional flows could not be stored in the lake. This may in turn affect the ability to maintain the cold water pool in the summer and fall months. The Proposed Project anticipates the need to evaluate options to access the cold water pool in the reservoir for such needs. Future flood operations under potential future climate change scenarios would continue to be within the operational parameters set forth by USACE.

Under the Proposed Project, the Oroville Facilities will continue to release water as under Existing Conditions. These include releases to:

- Operate the project to meet flood control criteria outlined by USACE;
- Ensure water supply of up to 936,000 afy to senior water right holders[1] along the Feather River from Lake Oroville to the confluence with the Sacramento River, including the Feather River Service Area (FRSA)[2];
- Satisfy conditions in the 1983 agreement between DFG and DWR concerning the operation of the Oroville Facilities for management of fish and wildlife;
- Satisfy the conditions in the 1986 Coordinated Operations Agreement for CVP/SWP operation;
- Satisfy conditions in DWR's water right permits that were last amended in SWRCB Water Right Decision 1641 (D-1641), which requires the operations of the SWP and the CVP, owned and operated by the U.S. Bureau of Reclamation, to meet the water quality standards outlined in the *1995 Water Quality Control Plan for the San Francisco Bay/Sacramento–San Joaquin Delta Estuary* (Bay-Delta Plan);

[1] The senior water right holders are the Thermalito Irrigation District; the South Feather Water and Power Agency (formerly Oroville-Wyandotte Irrigation District); the Western Canal Water District; the Joint Water District Board (comprising the Richvale Irrigation District, the Biggs-West Gridley Water District, the Butte Water District, and the Sutter Extension Water District); the Tudor Mutual Water Company; the Oswald Water District; the Garden Highway Water Company; and the Plumas Mutual Water Company. The settlement of water rights for these entities is typically expressed in terms of acre-feet of annual entitlement, although some settlement agreements also stipulate specific rates of flow in cubic feet per second.

[2] The FRSA agencies are the Western Canal Water District and the Joint Water District Board (comprising the Richvale Irrigation District, the Biggs-West Gridley Water District, the Butte Water District, and the Sutter Extension Water District).

- Satisfy conditions in the biological opinions for the CVP and SWP long-term OCAP issued by NMFS and USFWS in 2004 and 2005, respectively; and

- Contribute to meeting annual water supply requests of SWP water contractors for Table A deliveries.

3.4.5 Conclusion

The CEQA analysis of the Proposed Project and alternatives in the DEIR addressed the following resource areas:

- Water supply

- Water quality

- Aquatic resources

- Recreational resources

- Cultural resources

- Agricultural resources

Potential adverse impacts on these resource areas were evaluated for cumulative impacts on the environment in consideration of past, present, and future reasonably foreseeable projects. These cumulative impacts were further assessed against various future climate change scenarios in a 50-year project time horizon and beyond. No new or different adverse impacts were concluded from this analysis. Commenters did not provide any additional information or analysis that would alter the conclusions of the DEIR.

3.4.6 Literature Cited

DWR (California Department of Water Resources). 2004. Final Report, Flood Management Study. Study Plan E-4 (SP-E4), Flood Management Study. Oroville Facilities Relicensing, FERC Project No. 2100. Sacramento, California. November 2004.

DWR (California Department of Water Resources). 2006. Progress on Incorporating Climate Change into Management of California's Water Resources. Sacramento, California.

3.5 THE RELATIONSHIP BETWEEN THE OROVILLE FACILITIES AND FOREMAN CREEK

Numerous comments have raised concerns about the protection of significant cultural resources at Foreman Creek and the related proposal in the FERC Staff Alternative to temporarily close Foreman Creek to recreational use. These comments were received from members of the local Native American community, private citizens, and Butte County. This response is intended to clarify differences between the Proposed Project and the FERC Staff Alternative relative to Foreman Creek, and document how the cultural resources and recreational issues at Foreman Creek have been addressed in the EIR. Specific responses to individual comments on Foreman Creek issues are provided as appropriate in Chapters 5.0 and 7.0 of this FEIR.

3.5.1 The Proposed Project Relative to the FERC Staff Alternative

Many comments received from the public on the DEIR focused on the perception that DWR was proposing to close Foreman Creek to recreational use and/or create a "cultural resource preserve" at this location. This perception is not consistent with DWR's intent or with the description of the Proposed Project provided in the DEIR. The Proposed Project is the Settlement Agreement for Licensing of the Oroville Facilities, FERC Project No. 2100 (SA). The SA includes a variety of plans and programs that have been agreed upon by the SA signatories. Three specific SA articles incorporated in the Proposed Project are directly relevant to the Foreman Creek area.

SA Article A127 calls for implementation of the RMP upon issuance of a new hydroelectric license by FERC. The RMP includes proposed actions and enhancements at Foreman Creek to reroute visitor use and possibly relocate the existing access road away from cultural resources, and to install a vault toilet building, interpretive signage, and five to ten picnic tables with shade ramadas at a suitable promontory near the high-water line. As noted in the RMP, these activities are to be undertaken in coordination with the Historic Properties Management Plan (HPMP) for the project. The RMP also calls for formation of a Recreation Advisory Committee (RAC) within 6 months of license acceptance. The RAC is to be composed of 13 entities, including many local government and citizen groups as well as DWR, DFG, and DPR.

SA Article A128 requires implementation of the HPMP as approved by FERC. The HPMP is described more fully in Section 3.3 on pages 3.3-37 and 3.3-38 of the DEIR. As noted on page 3.3-33 of the DEIR, the HPMP will both redirect and improve recreational usage to specific areas of Foreman Creek to help "prevent future damage to historic properties and culturally sensitive areas." The HPMP includes the formation of a Cultural Resources Consultation Group (CRCG) to facilitate long-term coordination between DWR and other parties responsible for cultural resources management in the Project area. The formation of the CRCG was incorporated in the HPMP to maintain regular communication with the local community, as well as to help resolve complex issues such as those encountered at places like Foreman Creek.

In compliance with a July 17, 2007, letter from FERC, DWR prepared and circulated for comment a revised draft HPMP in September 2007. Consistent with previous consultation undertaken by DWR, the revised draft HPMP was provided to federal land management agencies, Native American Tribes, the State Historic Preservation Officer, and other applicable agencies and communities for review and comment. One letter commenting on the revised draft HPMP was submitted to DWR jointly on behalf of the Berry Creek, Enterprise, and Mooretown Rancherias. No other comment letters were received. As stipulated in the July 17 letter from FERC, DWR subsequently prepared and submitted a final HPMP (DWR 2008) to FERC in response to the comment received on the revised draft. DWR anticipates that FERC will adopt the HPMP upon issuance of a new license.

SA Article A129 includes development of a plan within 1 year of license issuance to redirect recreation usage at Foreman Creek to protect cultural resources during the development of planned recreation enhancement at this location. This article is noted on page 3.3-38 of the DEIR.

Through these articles, the Proposed Project anticipates the enhancement of recreational facilities at Foreman Creek while redirecting certain uses and implementing protective measures within the HPMP to protect significant cultural resource values in this area. In coordination with DPR, DWR has instituted several interim protective measures at Foreman Creek, including limited periodic closure of the area to recreational use as necessary to prevent damage to and looting of cultural resources exposed in the inundation zone when the reservoir level is below 800 feet mean sea level (msl). Long-term closure of Foreman Creek to recreation use is not included in the Proposed Project.

The temporary closure of the Foreman Creek boat launch to recreational use described in the FERC Staff Alternative (Section 2.3.5 of the FEIS) appears to be the source of confusion for many of the comments and the form letters submitted in response to the DEIR. The FERC Staff Alternative, as noted on page 3.3-41 of the DEIR, calls for the temporary closure of the Foreman Creek boat launch to recreational use while DWR develops a plan for protecting cultural resources that includes a spectrum of possible actions, including installing recreational facilities to redirect recreational use away from cultural resources (as described in SA Article A129). The FERC Staff Alternative recommends that DWR prepare a plan in consultation with local Native American Tribes within 6 months of license issuance for protecting cultural resources at Foreman Creek.

3.5.2 Analysis of Environmental Issues at Foreman Creek

3.5.2.1 Cultural Resources Issues

Some comments on the DEIR questioned the accuracy or adequacy of the information related to cultural resource values at Foreman Creek. In accordance with Study Plan C1 and prior to preparation of the DEIR, DWR completed a professional archaeological survey of 100 percent of the area at Foreman Creek, including all State lands above the reservoir and the entire fluctuation zone down to 690 feet msl. The survey was

conducted by professional archaeologists associated with California State University, Sacramento, and Sonoma State University. The crews consisted of six to eight professional archaeologists and one or two Maidu trainees. Information on survey methods can be found in *The Archaeological and Historical Site Inventory at Lake Oroville, Butte County—A Report for the Public* (DWR undated) and *Konkow Maidu Tribal Presence in the Lake Oroville Area: An Ethnographic and Ethnohistoric Inventory* (DWR undated). These reports can be found on the DWR website or may be obtained upon request. As noted in Section 4.8, page 4.8-1 of the DEIR, specific information on the nature and location of cultural resources is considered confidential and not available to the general public.

As stated on pages 3.3-33, 3.3-37, and 3.3-38 of the DEIR, DWR intends to protect site values at Foreman Creek through mitigation measures incorporated in the HPMP, while redirecting and improving recreational uses in specific areas to allow for continued public access to Foreman Creek. DWR remains committed to protecting cultural resources at Foreman Creek through the development of a detailed site plan, which under the final HPMP would provide for:

- Monitoring activities, including posting a guard in this area during low-reservoir periods to enforce laws prohibiting vandalism and looting;
- Protection and stabilization measures, including nighttime closures of this area during low-reservoir periods when sensitive cultural resources are exposed, establishment of designated parking areas, placement of recreational facilities away from archaeologically sensitive areas, and the potential use of protective cover at select sites at Foreman Creek;
- Implementing a public education and information program; and/or
- Recovering archaeological data, if necessary.

As noted in Table 5.8-1 and described on Page 5.8-12 of the DEIR, the proposed measure to improve and redirect recreational usage to specific areas at Foreman Creek would provide enhanced protection of significant cultural resource values at this location, and would therefore result in a beneficial effect on cultural resources. These commitments to protect significant cultural resource values at Foreman Creek are also conveyed in the final HPMP (DWR 2008).

3.5.2.2 Recreation Issues

As noted above, many comments received from the public on the DEIR focused on the perception that DWR was proposing to close Foreman Creek to recreational use and/or create a “cultural resource preserve” at this location and that this would represent a significant impact on recreational use. As stated above, the Proposed Project does not involve closure of Foreman Creek to recreational use.

Consistent with the information provided in the DEIR, SA Articles 127, 128, and 129, and the final HPMP, DWR committed to develop a site-specific plan within 1 year of license issuance to redirect recreation usage at Foreman Creek to protect cultural resources while concurrently implementing recreation enhancements at this location. This plan will be developed in consultation with the four federally recognized Native American Tribes located in Butte County, the Konkow Valley Band of Maidu, and the RAC. Through this collaborative approach, members of the public will be allowed to participate in the development of a site-specific plan to improve and redirect recreation usage to specific areas at Foreman Creek, resulting in beneficial effects to both cultural resources and recreation use.

As noted in Section 5.7.4 of the DEIR (Table 5.7-1 and page 5.7-15), the Proposed Project involves new or improved facilities such as trails, parking areas, and restrooms, including enhanced facilities at Foreman Creek. As such, the Proposed Project would provide many beneficial effects to recreation.

Section 5.7.4 of the DEIR (Table 5.7-1 and pages 5.7-22 and 5.7-23) also evaluated the potential impacts on recreation related to the FERC Staff Alternative, including potential temporary closure of Foreman Creek boat launch (modified SA Article 129). Because there would be no direct or indirect substantial physical degradation of either public recreation uses or public recreational facilities, the impact on recreational use at Foreman Creek would be less than significant. As noted in the DEIR (page 5.7-22), there are few locations in this portion of the reservoir with similar gently sloped shorelines suitable for boat launching and day use that could serve as alternative locations for the facilities provided at Foreman Creek. However, the conclusion that this is a less-than-significant impact is appropriate based on the fact that the launch closure would be temporary, rather than permanent.

If the new license issued by FERC includes the temporary closure of the Foreman Creek boat launch as described in the FERC Staff Alternative, opportunities for swimming, boat launching, and fishing would be available a short distance away at the existing facilities at Loafer Creek and at Enterprise (when the reservoir elevation is above 835 feet msl). The temporary impact on recreation under the FERC Staff Alternative would be less than significant, and no mitigation is required.

Nightly gate closures presently exist as recurring practice and are necessary to prevent vehicular damage and looting of cultural resources exposed in the inundation zone when the water level is below 800 feet msl. However, DWR remains committed to SA Article A129 and to finding a compromise that avoids, to the extent feasible, future closures while providing long-term protection for cultural resources and continued recreation opportunities at Foreman Creek.

3.5.3 Literature Cited

DWR (California Department of Water Resources). 2008. Historic Properties Management Plan. Final. Oroville Facilities Relicensing, FERC Project No. 2100. Sacramento, California. January 2008.

DWR (California Department of Water Resources). Undated. The Archaeological and Historical Site Inventory at Lake Oroville, Butte County—A Report for the Public. Prepared by Archaeological Research Center, California State University, Sacramento, Sacramento, California; and Anthropological Studies Center, Sonoma State University, Rohnert Park, California. Study Plan C-1 (SP-C1), Cultural Resources Inventory. Oroville Facilities Relicensing, FERC Project No. 2100. Sacramento, California.

DWR (California Department of Water Resources). Undated. Konkow Maidu Tribal Presence in the Lake Oroville Area: An Ethnographic and Ethnohistoric Inventory. Study Plan C-1 (SP-C1), Cultural Resources Inventory. Oroville Facilities Relicensing, FERC Project No. 2100. Sacramento, California.

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3.6 THE RELATIONSHIP BETWEEN THE OROVILLE FACILITIES AND OCAP

Several comments have raised concerns regarding the information presented in the DEIR concerning the Operations Criteria and Plan (OCAP). Commenters expressed concern about how changing regulatory conditions in the Sacramento–San Joaquin Delta (Delta) may alter the evaluation of impacts in this EIR. This master response is intended to clarify issues addressed in the EIR. Specific responses to individual comments on OCAP-related issues are provided in Chapters 4.0 and 5.0 of the FEIR in responses to comment letters.

3.6.1 Evaluation of the Proposed Project under a Changing Regulatory Environment

The objective of the Proposed Project is to secure a new 50-year license from FERC for the continued operation of the Oroville Facilities. Over a 50-year time horizon it is possible for conditions downstream of the Feather River to be altered due to actions along the Sacramento River, in the Delta, and related to ocean conditions. These changes may include flood management activities, conservation and restoration actions, regulatory changes, land use changes, and changes in conveyance of water through or around the Delta. The Governor's Delta Vision Blue Ribbon Task Force is charged with recommending actions to provide for a sustainable Delta. For whatever future is determined by that process, by other processes such as the *Bay-Delta Conservation Plan*, or by future Bay-Delta water rights/water quality proceedings, releases from the Oroville Facilities will be one of many inputs to the hydrology of the Delta ecosystem.

Downstream releases from Oroville Reservoir are split into two portions: one through the Diversion Pool into the LFC and the other through the Diversion Pool to the Thermalito Forebay and then to the Thermalito Afterbay. From the Thermalito Afterbay, flows are released into the main Feather River channel, where they join with the LFC flow to make the total releases from the Oroville Facilities. The total releases are governed by a variety of factors including flood control releases, Bay-Delta water quality releases, Feather River Settlement Agreement water rights deliveries, export needs in the Delta, and in-stream flow releases as required by agreements with DFG and requirements by NMFS in the current OCAP Biological Opinion (BO).

The current OCAP BO related to salmonids has been challenged in federal court proceedings. On April 16, 2008, Judge Oliver Wanger ruled in a lawsuit challenging a 2004 plan to change reservoir operations that the U.S. Bureau of Reclamation and NMFS disregarded evidence that the Central Valley steelhead and winter- and spring-run Chinook salmon would be harmed. Judge Wanger ruled that these two agencies violated the ESA by failing to include measures to protect these fish in the BO. This ruling ordered that the agencies initiate reconsultation. A new BO is an expected result from the reconsultation and is anticipated to be issued in winter 2008–2009. Interim remedies to protect these species may be imposed upon the agencies before the issuance of the new BO. It is unclear whether this decision will affect other tributaries of the Sacramento River, and DWR cannot predict at this time what the interim remedies will be or what the new BO will contain to protect these fish.

The proposed actions presented in the DEIR were developed in consultation with stakeholders and regulatory agencies, including NMFS, and were based on the suite of study plan reports created during the Relicensing process. The study plan reports identified the effects of the Oroville Facilities on the environmental conditions in the Project area. Based on this information, protection, mitigation, and enhancement (PM&E) measures were identified that would be protective of aquatic species in the Project area and address ongoing impacts of the Proposed Project on anadromous species. During the study process and the development of the PM&E measures, the most current modeling was used, including current assumptions regarding basin hydrology and reservoir operations that were used by the most current OCAP BOs. New operations simulation modeling for the DEIR was conducted during the 2006-07 timeframe to support ongoing environmental analyses. One of the more significant changes in inputs relates to incorporation of the results of the Trinity Record of Decision into the model runs for the Existing Conditions, which was consistent with the current OCAP modeling runs. These assumptions were carried into the HYDROPS and WQRRS modeling as well.

A second OCAP BO related to Delta smelt was released by USFWS in 2004. This BO was also challenged in federal court. On December 14, 2007, Judge Wanger filed an interim remedial order following summary judgment and evidentiary hearing. This order will govern SWP and CVP operations in 2008 and be in effect until a new BO is rendered in fall 2008. The remedy and the USFWS BO do not include any actions related to the Feather River specifically, but do have effects on total reservoir releases from Oroville. Neither the remedy nor the future OCAP BO will affect the majority of release requirements from Oroville. Flood control releases, Bay-Delta water quality releases, Feather River SA water rights deliveries, and in-stream flow releases as required by agreements with DFG and requirements by NMFS in the current OCAP BO would not be altered by either the remedy or the future OCAP BO on Delta smelt from USFWS. The only changes would be in amounts and timing of releases from Oroville for Delta export purposes. The reduced opportunity for Delta export included in the remedy would likely result in somewhat higher storage volume in Lake Oroville at the beginning of summer, and slight increases in export releases during summer and early fall months to partially recover from earlier reduced releases from the winter/spring months, when possible. This might increase carryover storage in Lake Oroville. These differences would be minor and would not have an effect on the ability to meet future water temperature or flow objectives in the Feather River below Oroville. The remedy would be in effect only until a new OCAP BO is issued.

If the new OCAP were similar to the current remedy, it is plausible that the increased carry-over storage in Lake Oroville and the later releases would make it easier to meet the new Feather River water temperature targets specified in the SA. The PM&E measures in the SA were all developed and formulated to be effective under an extremely broad hydrologic range (1.7–10 million acre-feet of annual inflow to Lake Oroville) that mimics not only inflow changes, but a variety of release scenarios. The future OCAP BO release schedule would be embedded within this large extreme of inflow/outflow parameters used to develop the PM&E measures.